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TEXAS A&M UNIVERSITY
Statistics

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COMPUTATIONALLY EFFICIENT BAYESIAN UNIT-LEVEL MODELS FOR NON-GAUSSIAN DATA UNDER INFORMATIVE SAMPLING WITH APPLICATION TO ESTIMATION OF HEALTH INSURANCE COVERAGE

ABSTRACT:

Statistical estimates from survey samples have traditionally been obtained via design-based estimators. In many cases these estimators tend to work well for quantities, such as population totals or means, but can fall short as sample sizes become small. In today's "information age," there is a strong demand for more granular estimates. To meet this demand, using a Bayesian pseudolikelihood, we propose a computationally efficient unit-level modeling approach for non-Gaussian data collected under informative sampling designs. Specifically, we focus on binary and multinomial data. Our approach is both multivariate and multiscale, incorporating spatial dependence at the area level. We illustrate our approach through an empirical simulation study and through a motivating application to health insurance estimates, using the American Community Survey.

This is joint work with Paul A. Parker (U.C. Santa Cruz) and Ryan Janicki (U.S. Census Bureau).

BIO: Dr. Scott H. Holan is a Professor of Statistics at the University of Missouri and a Senior Research Fellow at the US Census Bureau. His research focuses on high-dimensional dependent data modeling machine learning for official statistics and survey methodology and includes Bayesian methods, spatial and spatio-temporal statistics, and multivariate analysis, among others. He is an elected Fellow of the American Statistical Association, elected Fellow of the Institute of Mathematical Statistics, and Elected Member of the International Statistical Institute. He currently serves as Co-Editor-in-Chief for the International Statistical Review. He was also a recipient of the H. O. Hartley Award in 2016 and received his PhD under the advisement of Emanuel Parzen in 2004.

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2:00 PM - 3:00 PM, CST
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